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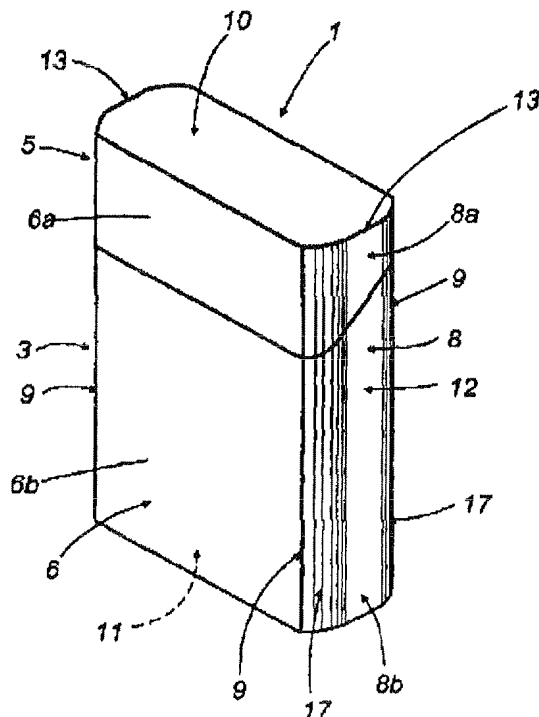
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[Continued on next page]

(54) Title: A RIGID PACKET WITH A HINGED LID



(57) Abstract: A packet (1) of rigid type with a hinged lid (5), appearing substantially parallelepiped in shape with sharp longitudinal corner edges (9), presents a front face (6), a rear face (7), and two convexly profiled flank faces (8) each presenting a flat central portion (12) and two precreased radiused lateral bands (17) merging along one side with the flat central portion (12) and joined along the other respectively to the front face (6) and to the rear face (7) by way of the sharp corner edges (9).

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DescriptionA rigid packet with a hinged lidTechnical Field

The present invention relates to a rigid packet with a hinged lid.

In particular, the invention relates to a rigid packet of hinge-lid type fashioned from a flat precreased blank of cardboard or similar material.

The present invention finds application to advantage in the manufacture of cigarette packets, the field to which reference is made explicitly in the following specification, albeit implying no limitation, but could be applied likewise in the manufacture of cartons or packs designed to contain a plurality of packets of cigarettes.

Background Art

Rigid packets of the type in question, that is to say packets of parallelepiped geometry typically rectangular in section, present certain drawbacks deriving from a shape not readily adaptable to the human anatomy, and from the fact that the side walls constituting the flanks of the packet are somewhat lacking in rigidity and can buckle easily. This type of drawback is aggravated further by the fact that the flanks are subjected to the heaviest stresses, oriented in a direction parallel to the two larger side faces when the packet is gripped

during use, and in particular when the packet is opened for the first time.

Such conventional packets of rectangular section are intended exclusively to contain groups of cigarettes formed by two or more layers arranged parallel to the two larger side faces, of which the innermost layer or layers will present a number of cigarettes greater or less than that of the two outermost layers.

The object of the present invention is to provide a rigid hinge-lid packet that will be unaffected by the drawbacks described above.

A further object of the invention is to provide a rigid packet of hinge-lid type requiring a quantity of cardboard for its manufacture less than that needed for a similarly proportioned parallelepiped packet of perfectly rectangular section.

Disclosure of the Invention

The stated object is realized according to the present invention in a rigid packet with a hinged lid, appearing substantially as a rectangular parallelepiped and comprising a front face and a rear face substantially parallel one with another, also two flank faces disposed parallel one with another and substantially perpendicular to the front and rear faces, wherein the front and rear faces are joined to the flank faces along relative sharp corner edges, characterized in that each of the flank faces presents a respective flat central

portion and two lateral bands, and in that each lateral band presents a curved profile with the concave side directed inwards, merged on the one hand with the relative flat central portion and joined on the other to the front face or rear face along the relative sharp corner edge.

The invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

- 10 -figure 1 illustrates a preferred embodiment of the packet according to the present invention, viewed in perspective from the front and shown in a closed configuration;
- figure 2 shows the packet of figure 1 in the open configuration, viewed in perspective from the front;
- figure 3 shows the packet of figure 1 in the closed configuration, viewed in perspective from the rear;
- 20 -figures 4 and 5 show the packet of figure 1 viewed in plan from above and from beneath, respectively;
- figures 6, 7, 10 and 12 illustrate four different types of diecut blank utilized in manufacturing the packet of figure 1;
- 25 -figure 8 illustrates the packet of figure 1 in a version designed to contain a particular group of cigarettes, viewed in cross section;
- figure 9 illustrates a portion of the blank used to manufacture the packet of figure 1, shown in a further embodiment;
- 30

-figures 11 and 13 are plan views of cigarette packets obtainable respectively from the blank of figure 10 and from the blank of figure 12.

With reference to figures 1 to 5 of the drawings,
1 denotes a packet, in its entirety, containing a group of cigarettes 2 arranged in layers; in the example of figure 2 there are three such layers, of which an intermediate layer has one cigarette 2 less than the two outermost layers.

The packet 1 comprises a container 3 of cupped appearance with an open top end, denoted 4, and a lid 5 likewise of cupped appearance hinged to the container 3 and rotatable thus relative to the container 3 between an open position and a closed position in which the top end 4 is concealed.

With the lid 5 occupying the closed position, the packet 1 assumes the appearance of a substantially rectangular parallelepiped compassed by a front face 6 and a rear face 7 parallel one with another, two flank faces 8 substantially parallel one with another and presenting a convex profile, disposed substantially perpendicular to the front and rear faces 6 and 7 and joined to these same faces 6 and 7 along respective sharp corner edges 9, also a top end face 10 and a bottom end face 11 parallel one with another and perpendicular to the remaining four faces 6, 7 and 8.

Each flank face 8 comprises a flat central portion 12 of substantially rectangular outline, delimited at the top by a rectilinear central

portion 13 presented by one shorter side 14 of the top end face 10, and delimited at the bottom by a rectilinear central portion 15 presented by one shorter side 16 of the bottom end face 11; the top and bottom rectilinear central portions 13 and 15 are identical one to another. Each flank face 8 further comprises two longitudinal lateral bands 17 located one on each side of the central portion 12, between the central portion 12 and the relative corner edge 9. Each band 17 is rendered pliable internally by longitudinal crease lines 18, so as to assume a curved profile with the concave face directed inwards, and presents a top edge offered to a curved portion 19 presented by the shorter side 14 of the top end face 10, and a bottom edge offered to a curved portion 20 presented by the shorter side 16 of the bottom end face 11; the top and bottom curved portions 19 and 20 are identical one to another.

In the light of the foregoing it will be evident, as clearly discernible from figures 4 and 5, that the distance between the central portions 12 of the flank faces 8 is greater than the corresponding distance between the corner edges 9.

The front, rear and flank faces 6, 7 and 8 each include an upper portion denoted by the suffix "a", coinciding with a relative face of the lid 5, and a lower portion denoted by the suffix "b" coinciding with a relative face of the container 3, whilst the top end face 10 coincides with the top of the lid 5

and the bottom end face 11 with the bottom of the container 3.

5 With the lid 5 occupying the closed position, the three upper portions 6a, 7a and 8a lie with the respective free edges 21, 22 and 23 offered to the free edges 24, 25 and 26 of the lower portions 6b, 7b and 7b; more exactly, the edge 22 presented by the rear face 7a of the lid 5 is joined permanently to the edge 25 presented by the rear face 7b of the container 3, the two combining to create a hinge 27
10 extending transversely between two corner edges 9, about which the lid 5 is rotatable between the open and closed positions.

15 Lastly, the rigid packet 1 comprises a stiffening frame 28 of U-profile projecting partially beyond the open top end 4, composed of a breast piece 29 rigidly associated with the inside of the front face 6, and, connected to the breast piece 29, two side pieces 30 each rigidly associated with the inside of a relative flank face 8.
20

Each such side piece 30 presents a flat central portion 31 destined to adhere to the respective inside surface of the flat central portion 12 presented by the relative flank face 8 of the packet 1, and two respective precreased lateral bands 32 of curved profile destined to adhere in part to the inside surfaces of the lateral bands 17 presented by the flank face 8. The flat central portions 31 of the side pieces 30 are connected by
25 the lateral bands 32 to the breast piece 29 of the
30

frame 28 by way of respective sharp corner edges 33 coinciding with the corner edges 9 of the front face 6.

Each lateral band 32 is rendered pliable by a
5 respective plurality of longitudinal crease lines,
and each corner edge 33 presents a longitudinal slot 34 serving in conventional manner to create a respective lip 35 positioned to interact with an internal surface of the lid 5 in such a way as to
10 hold the selfsame lid 5 in the closed position. Finally, the breast piece 29 of the frame 28 presents a central cutaway portion 36 directed toward the lid 5.

With reference to figures 6 and 7, the packet 1
15 is fashioned preferably from a flat diecut blank 37 of substantially elongated rectangular outline, of which the parts are denoted using the same numbers, primed, as those used to indicate the corresponding parts of the erected packet 1.

20 The blank 37 is referable to a predominating longitudinal axis 38 of symmetry and presents two crease lines 39 and 40 disposed one on either side of the axis 38, extending parallel to the axis 38 and dividing the blank 37 into three longitudinal
25 sectors 41, 42 and 43 lying side by side. The three sectors 41, 42 and 43 are crossed by a plurality of crease lines transverse to the axis 38 and denoted by the numbers 44 to 49.

The middle sector 42 is divided by the transverse
30 crease lines 44 to 49 into: a panel 6a' positioned

between the lines denoted 44 and 45; a panel 10'
between lines 45 and 46; a panel 7a' between lines
46 and 47; a panel 7b' between lines 47 and 48; a
panel 11' between lines 48 and 49, substantially
5 identical to the panel denoted 10'; and an end
panel 6b' joined to the panel denoted 11'.

The blank 37 further comprises a plurality of
lateral wings 50, 51, 52 and 53 joined in pairs
along the longitudinal crease lines 39 and 40 to
10 the outer edges of the panels 6a', 7a', 7b' and
6b', respectively, of which the wings denoted 51
carry longitudinal appendages 54 joined along the
transverse crease line denoted 46 and directed
toward the wings denoted 50. Similarly, the wings
15 denoted 52 carry longitudinal appendages 55 joined
along the transverse crease line denoted 48 and
directed toward the wings denoted 53.

The wings 50, 51, 52 and 53 are destined to make
up the flank faces 8 of the erected packet 1, and
20 comprise respective flat central portions 56, 57,
58 and 59 each forming a part of one respective
flat central portion 12 of the flank faces 8; the
flat portions 56, 57, 58 and 59 in question present
a substantially rectangular appearance and are of
25 width substantially equal to the length of the
rectilinear central portions 13 and 15 presented by
the shorter sides 14 and 16 of the end faces.

Each lateral wing 50, 51, 52 and 53 also presents
two respective precreased longitudinal lateral
30 bands 60, 61, 62 and 63 disposed one on each side

of the relative central portion 56, 57, 58 and 59, one extending adjacent to the relative longitudinal crease line 39 or 40, the other adjacent to the free outermost longitudinal edge of the wing 50, 51, 52 and 53.

The transverse dimensions of the lateral bands 60, 61, 62 and 63 are identical one to another and to the dimensions of the curved portions 19 and 20 presented by the shorter sides 14 and 16 of the end faces; moreover, the lateral bands 60, 61, 62 and 63 are one and the same as the longitudinal lateral bands 17 of the flank faces 8.

The panel 6a' first mentioned is also joined along the first transverse crease line 44 to a reinforcing flap 64 of width substantially equal to the width of the selfsame panel 6a'.

It will be seen that the essentially rectangular panels 10' and 11' destined to become the top end face 10 and the bottom end face 11 of the packet 1, respectively, are fashioned with the respective shorter sides 14' and 16' substantially aligned on the longitudinal crease lines 39 and 40, convexly profiled and presenting respective rectilinear central portions 13' and 15' that coincide with the top and bottom rectilinear portions 13 and 15 mentioned previously. Each rectilinear portion 13' and 15' extends at the opposite ends into two relative curved portions 19' and 20' coinciding with the curved portions 19 and 20 presented by the shorter sides 14 and 16 of the end faces 10 and 11

when packet 1 is erected.

In the example of figure 6, the aforementioned appendages 54 and 55 present a transverse dimension substantially the same as the respective transverse dimensions of the flat central portions 57 and 58 to which they are joined.

The hinge 27 coincides with the transverse crease line denoted 47.

The longer wings 52 and 53 will be bent at right angles to the respective panels 7b' and 6b' with which they are associated. These same panels 6b' and 7b' are then bent toward one another at right angles to the intermediate panel 11', with the result that the wings 52 of one pair will overlap the wings 53 of the other pair, causing the lateral bands 62 and 63 to assume a curved profile relative to the corresponding central portions 58 and 59 and thus form the flank faces 8b of the container 3. Similarly, the appendages 55 are bent inwards at right angles to the respective wings 52 and rotated together with the wings 52 to the point of engaging the inside surface of the corresponding panel 11', with which they combine to establish the bottom end face 11 of the packet 1.

In like manner, the shorter wings 50 and 51 are bent at right angles to the respective panels 6a' and 7a' with which they are associated. The flap 64 is bent double against the internal surface of the adjoining panel 6a', whereupon the two panels 6a' and 7a' are bent toward one another at right angles

to the intermediate panel 10' so that the wings 50 of one pair ultimately overlap the wings 51 of the other pair, causing the lateral bands 60 and 61 to assume a curved profile in relation to the central portions 56 and 57 and thus form the flank faces 8a of the lid 5. Similarly, the appendages 54 are bent inwards at right angles to the respective wings 51 and rotated together with the wings 51 to the point of engaging the inside surface of the corresponding panel 10', with which they combine to establish the top end face 10 of the packet 1.

The two longitudinal lines 39 and 40 are creased more forcibly than the lines generating the lateral bands 60, 61, 62 and 63, so that when the lateral wings 50, 51, 52 and 53 are bent along these same crease lines 39 and 40, the sharp corner edges 9 of the packet 1 will be formed decisively and without difficulty.

It will be seen that the operations of folding the blank 37 as described above are pertinent only to the container 3 and the lid 5; accordingly, the stiffening frame 28 is prepared preferably by means of separate folding operations and then assembled with the container 3.

In the example of figure 7, the appendages 54 and 55 are attached respectively to the rectilinear central portions 13' presented by the shorter sides 14' and 16' of the intermediate panels 10' and 11' and exhibit a width dimension, measured parallel to the longitudinal axis 38, substantially equal to

the width dimension, measured transversely to the longitudinal axis 38, presented by the flat central portions 56, 57, 58 and 59 of the lateral wings 50, 51, 52 and 53.

5 The packet 1 in the example of figure 8 is formed in exactly the same way as the packet 1 illustrated in figures 1, 2 and 3 but serves to accommodate a group of cigarettes 2 comprising four layers, of which the two innermost layers 65 include one
10 cigarette more than the outermost layers 66.

 The blank 37 illustrated in figure 12 differs from the blanks 37 of figures 6 and 7 in that the wings 50, 51, 52 and 53 have no outer precreased lateral bands 60, 61, 62 and 63. In this instance
15 the plan view of the packet 1 in figure 4 becomes as indicated in figure 13, where the flank faces 8 of the packet 1 are assembled with overlapping contact restricted to the flat central portions 12, generated by the flat portions 56 and 58 of the
20 corresponding wings 50 and 53.

 The blank 37 illustrated in figure 10 differs from the blanks 37 of figures 6 and 7 in that just two of the pairs of wings 51 and 53 have no outer precreased lateral bands 61 and 63, whereas the
25 remaining wings 50 and 52 are identical to those of the blanks 37 in figures 6 and 7.

 In this instance the plan view of the packet 1 in figure 4 becomes as indicated in figure 11, where the flank faces 8 of the packet 1 are assembled
30 with overlapping contact between the flat central

portions 12 generated by the flat portions 56 and 58 of the corresponding wings 50 and 53 and between the lateral bands 17 adjacent to the sharp corner edges 9 of the front face 6.

5 Finally, in the example of figure 9, each of the appendages 54 and 55 comprises a substantially rectangular central portion 67 attached to the flat portions 57 and 58 of the corresponding lateral wings 51 and 52, and two lateral portions 68 and 69
10 located on either side of the central portion 67.

 The lateral portions 68 and 69 are substantially trapezoidal in appearance, and the respective sides nearer the wings 51 and 52, extending from the line along which the appendages 54 and 55 are joined to
15 the corresponding flat portions 57 and 58, present a curved profile identical to that of the curved portions 19' and 20' presented by the intermediate panels 10' and 11'.

Claims

1) A rigid packet with a hinged lid, appearing substantially as a rectangular parallelepiped and comprising a front face (6) and a rear face (7) substantially parallel one with another, also two flank faces (8) disposed parallel one with another and substantially perpendicular to the front and rear faces (6, 7), wherein the front and rear faces (6, 7) are joined to the flank faces (8) along relative sharp corner edges (9), characterized in that each of the flank faces (8) presents a respective flat central portion (12) and two lateral bands (17), and in that each lateral band presents a curved profile with the concave side directed inwards, merged on the one hand with the relative flat central portion (12) and joined on the other to the front face (6) or rear face (7) along the relative sharp corner edge (9).

2) A packet as in claim 1, wherein the lateral bands (17) present a plurality of longitudinal crease lines (18).

3) A packet as in claim 1 or 2, wherein the distance between the flat central portions (12) is greater than the distance between the sharp corner edges (9), measured parallel respectively to the front face (6) and to the rear face (7).

4) A packet as in claims 1 to 3, comprising a container (3) of cupped appearance with an open top end (4), a lid (5) likewise of cupped appearance hinged to the open top end (4) and rotatable
5 between positions in which the container (3) is open and closed, and a stiffening frame (28) anchored to the container (3) and projecting in part from the open top end (4).

5) A packet as in claim 4, wherein the frame (28)
10 presents a flat breast piece (29) destined to adhere in part to the inside of the front face (6) of the packet, and two side pieces (30) each presenting a flat portion (31) destined to adhere to the respective inside surface of the flat
15 central portion (12) presented by the relative flank face (8) of the packet (1), also two respective precreased lateral bands (32) destined to adhere in part to the inside surfaces of the lateral bands (17) presented by the flank face (8),
20 the flat central portions (31) of the side pieces (30) being connected by the lateral bands (32) to the breast piece (29) of the frame (28) by way of respective sharp corner edges (33).

6) A packet as in claim 5, fashioned from a flat
25 diecut blank (37) of cardboard or similar material, referable to a predominating longitudinal axis (38) and presenting a substantially rectangular outline.

7) A packet as in claim 6, wherein the blank (37) presents two longitudinal crease lines (39, 40), and a plurality of transverse crease lines (44...49) delimiting respective front panels (6a', 6b'), intermediate panels (10', 11') and rear panels (7a', 7b') of the lid (5) and of the container (3) between the longitudinal crease lines (39, 40), of which the front panels (6a', 6b') and the rear panels (7a', 7b') are associated on opposite sides with corresponding pairs of longitudinally oriented lateral wings (50, 51, 52, 53) each presenting a flat central portion (56, 57, 58, 59) and two precreased lateral bands (60, 61, 62, 63).

8) A packet as in claim 6, wherein the blank (37) presents two longitudinal crease lines (39, 40), and a plurality of transverse crease lines (44...49) delimiting respective front panels (6a', 6b'), intermediate panels (10', 11') and rear panels (7a', 7b') of the lid (5) and of the container (3) between the longitudinal crease lines (39, 40), of which the front panels (6a', 6b') and the rear panels (7a', 7b') are associated on opposite sides with corresponding pairs of longitudinally oriented lateral wings (50, 51, 52, 53) each presenting a flat portion (56, 57, 58, 59) and one precreased lateral band (60, 61, 62, 63) interposed between the flat portion (56, 57, 58, 59) and the relative longitudinal crease line 39, 40).

9) A packet as in claim 6, wherein the blank (37) presents two longitudinal crease lines (39, 40), and a plurality of transverse crease lines (44...49) delimiting respective front panels (6a', 6b'), intermediate panels (10', 11') and rear panels (7a', 7b') of the lid (5) and of the container (3) between the longitudinal crease lines (39, 40), of which the front panels (6a', 6b') and the rear panels (7a', 7b') are associated on opposite sides with corresponding pairs of longitudinally oriented lateral wings (50, 51, 52, 53) each presenting a flat portion (56, 57, 58, 59) and one precreased lateral band (60, 61, 62, 63) interposed between the flat portion (56, 57, 58, 59) and the relative longitudinal crease line (39, 40), the wings (50, 52) associated with two of the panels (6a', 7b') also presenting a second precreased lateral band (60, 62) on the side of the flat portion (56, 58) opposite from the band (60, 62) adjoining the crease line (39, 40).

10) A packet as in claims 7 to 9, wherein the longitudinally oriented lateral wings (51, 52) associated on each side with the rear panels (7b', 7a') of the container (3) and the lid (5) are furnished with respective appendages (54, 55) connected to the respective flat portions (57, 58) of the selfsame lateral wings (51, 52).

11) A packet as in claim 10, wherein the appendages (54, 55) comprise a substantially rectangular central portion (67) attached to the respective flat portions (57, 58) of the lateral wings (51, 52), and two lateral portions (68, 69) of substantially trapezoidal outline on opposite sides of the central portion (67), of which at least the sides extending from the line along which the appendages (54, 55) are joined to the relative flat portions (57, 58) present a curved outline identical to that of curved portions (19', 20') presented by the intermediate panels (10', 11').

12) A packet as in claims 7 to 9, wherein the intermediate panels (10', 11') are furnished on each side with respective appendages (54, 55) extending transversely to the longitudinal axis (38) and presenting a dimension, measured parallel to the longitudinal axis (38), substantially equal to the dimension, measured transversely to the longitudinal axis (38), presented by the flat central portions (56, 57, 58, 59) of the lateral wings (50, 51, 52, 53).

FIG. 1

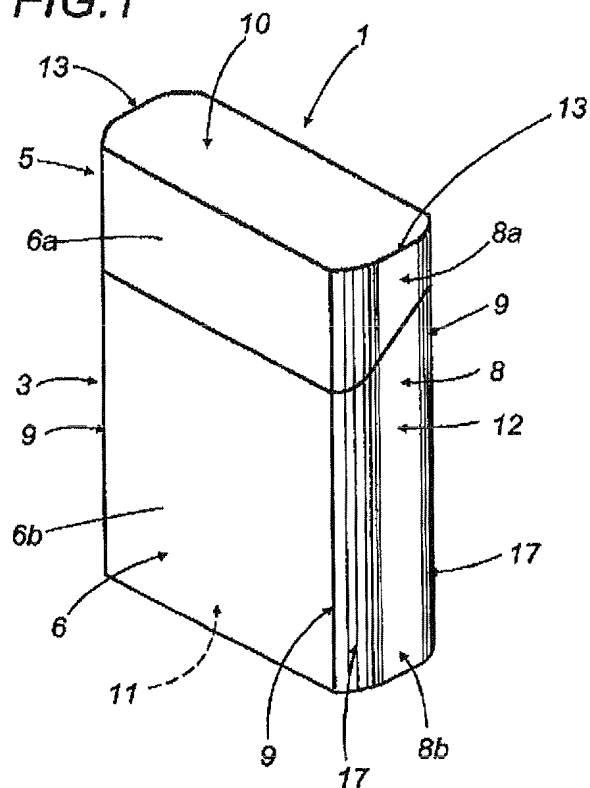


FIG. 2

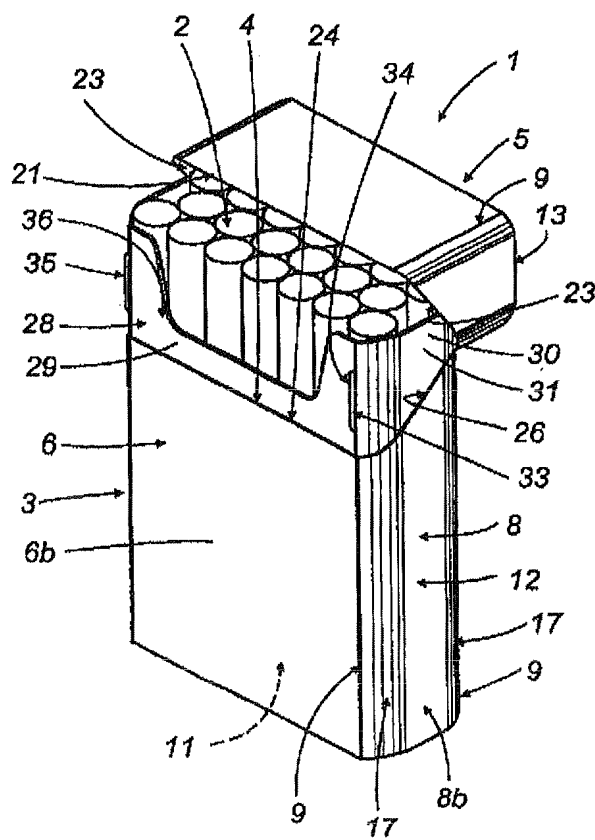


FIG. 3

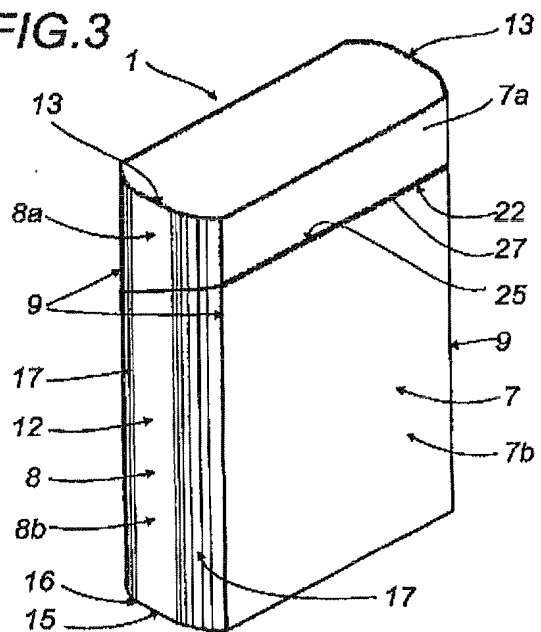


FIG. 4

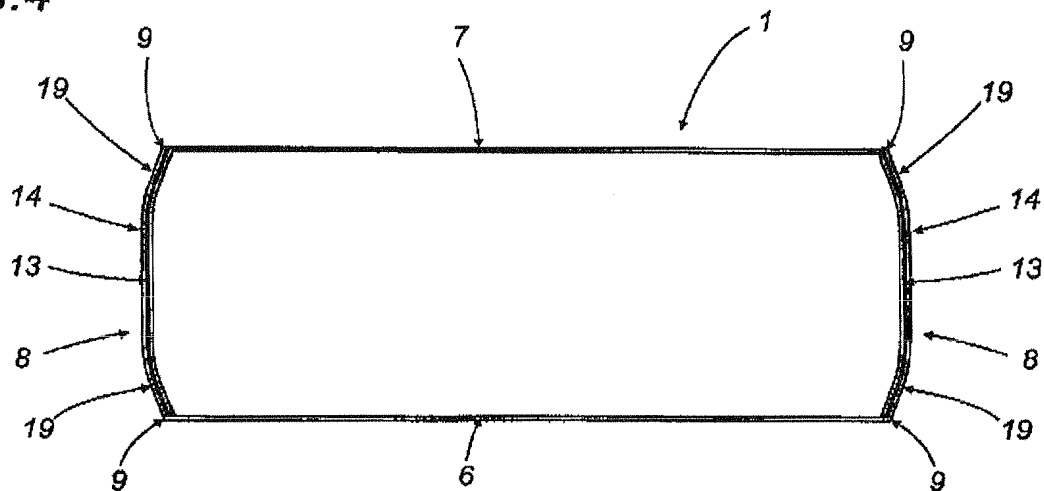


FIG. 5

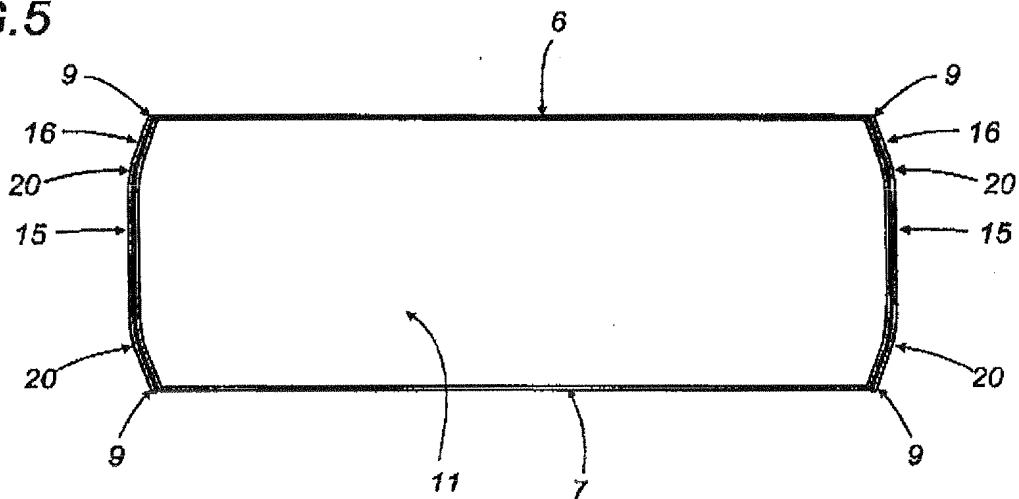


FIG. 8

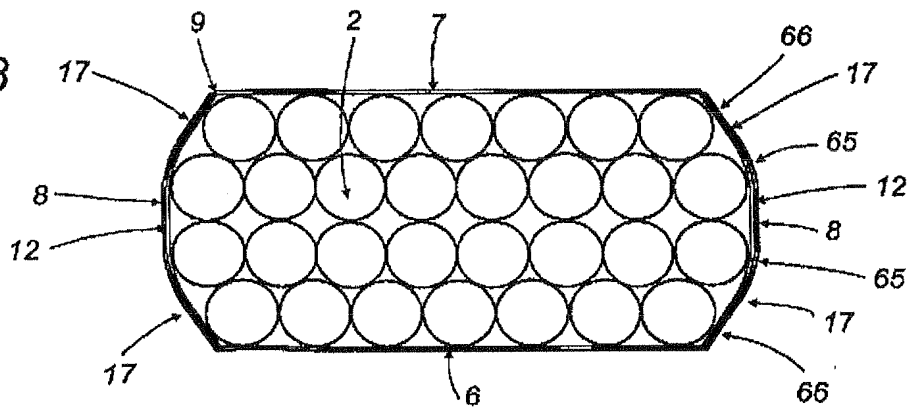


FIG. 6

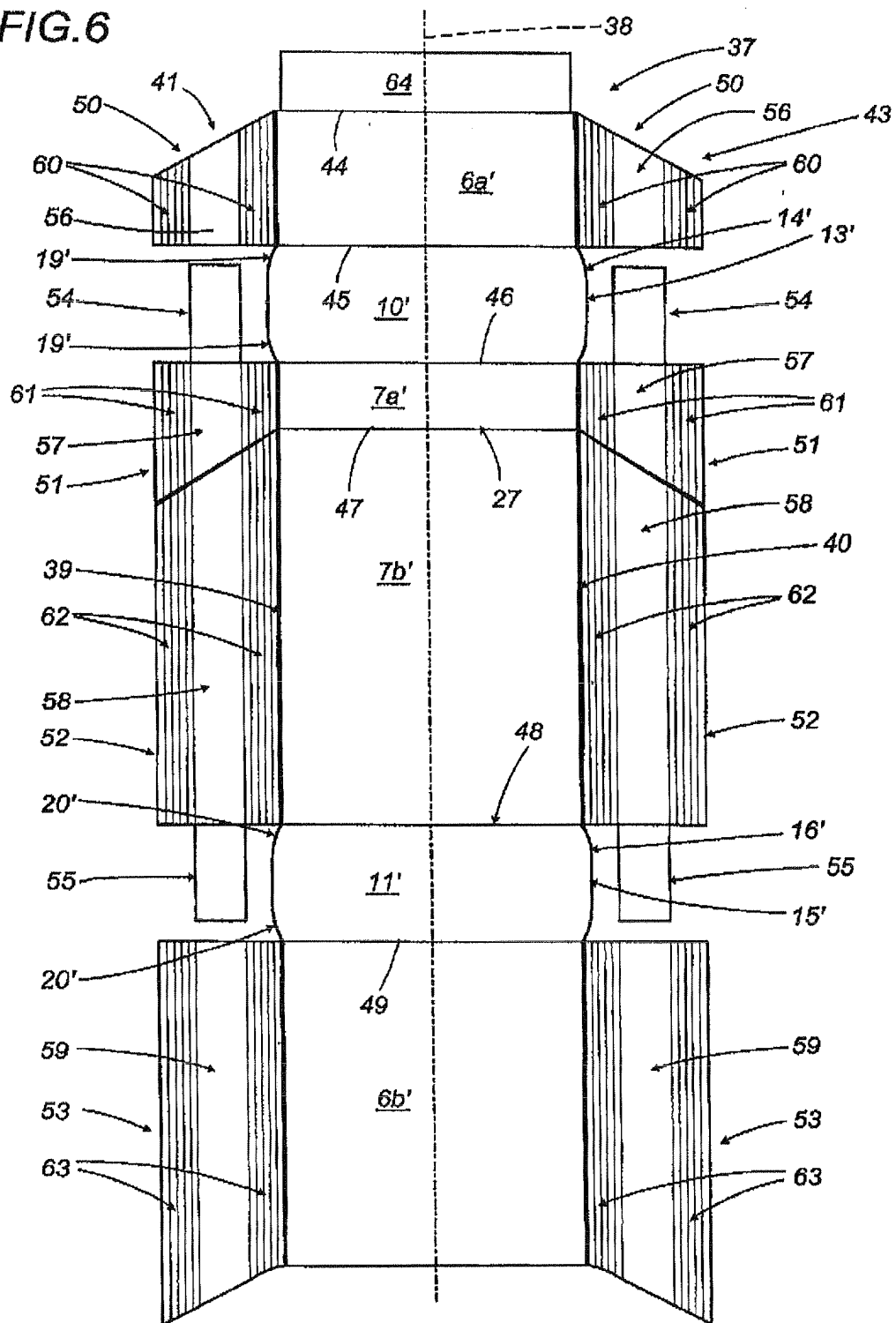


FIG. 7

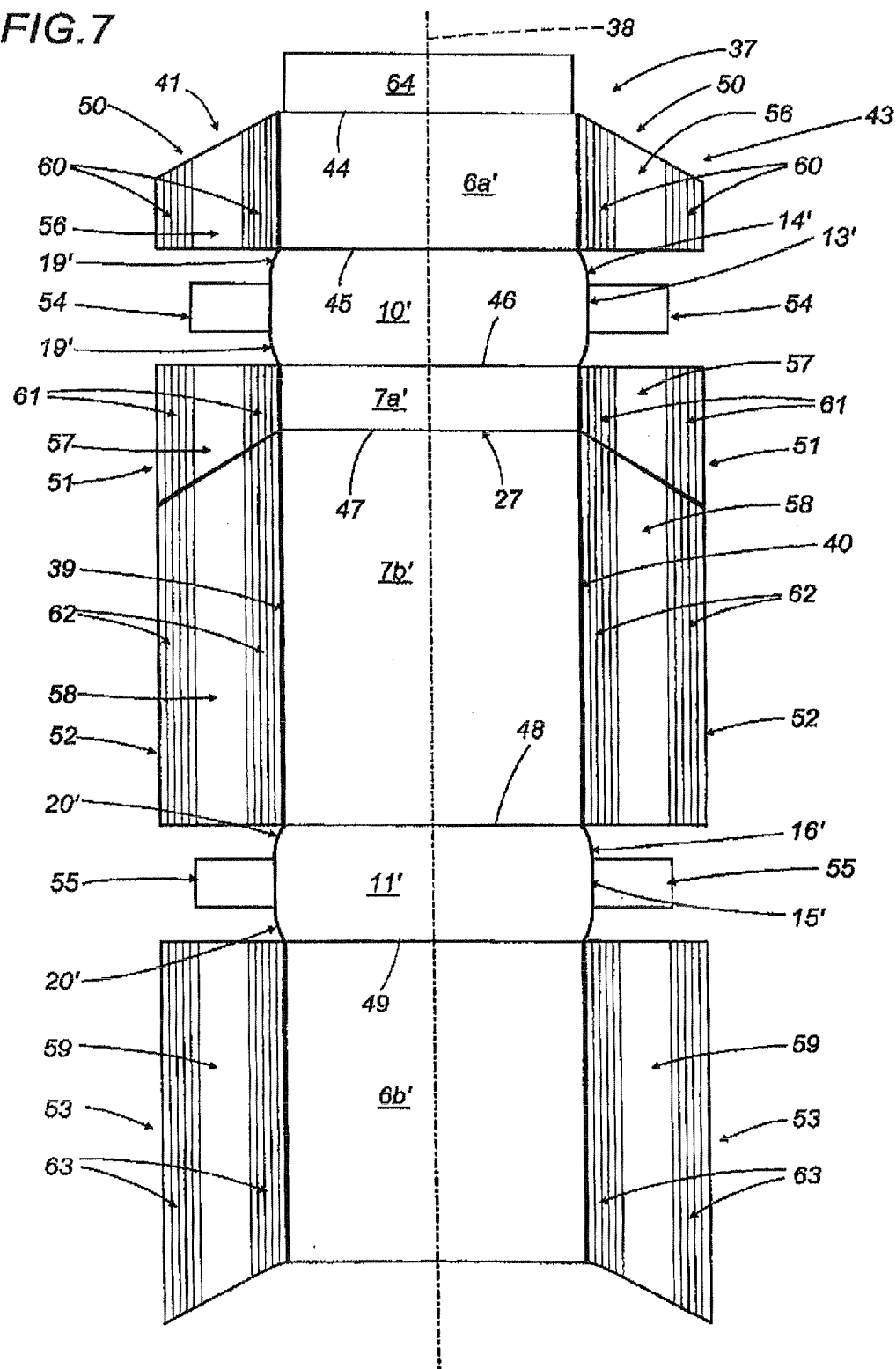


FIG. 9

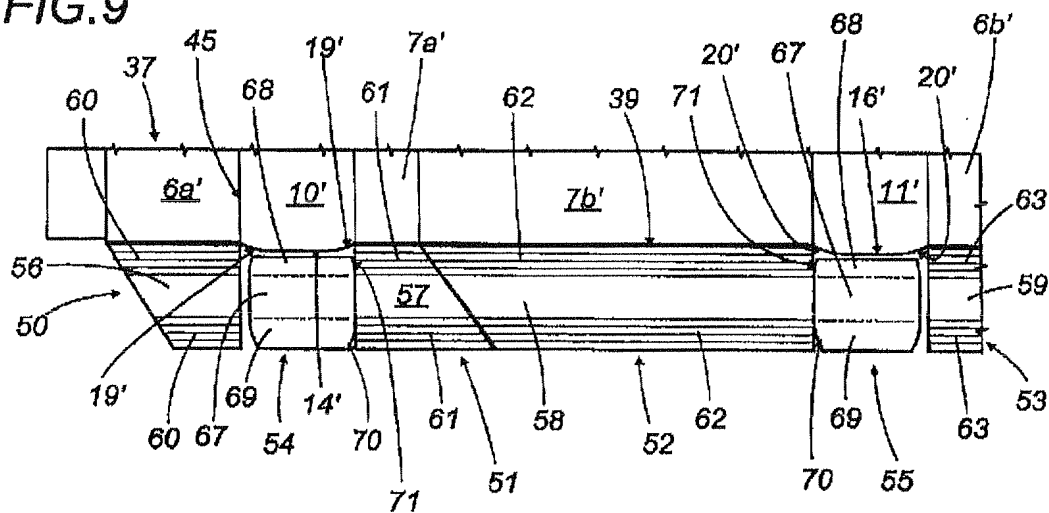


FIG. 11

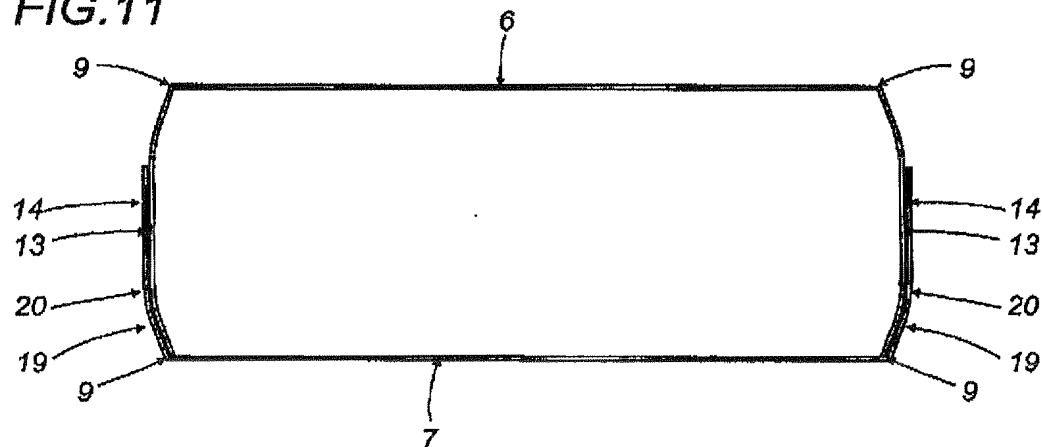


FIG. 13

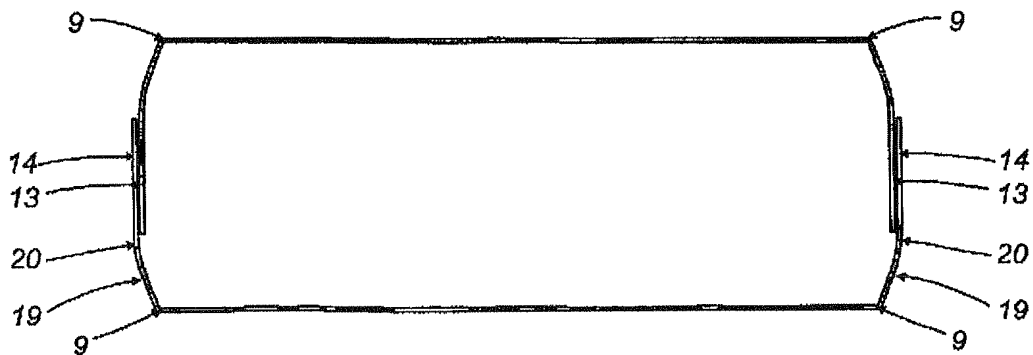


FIG. 10

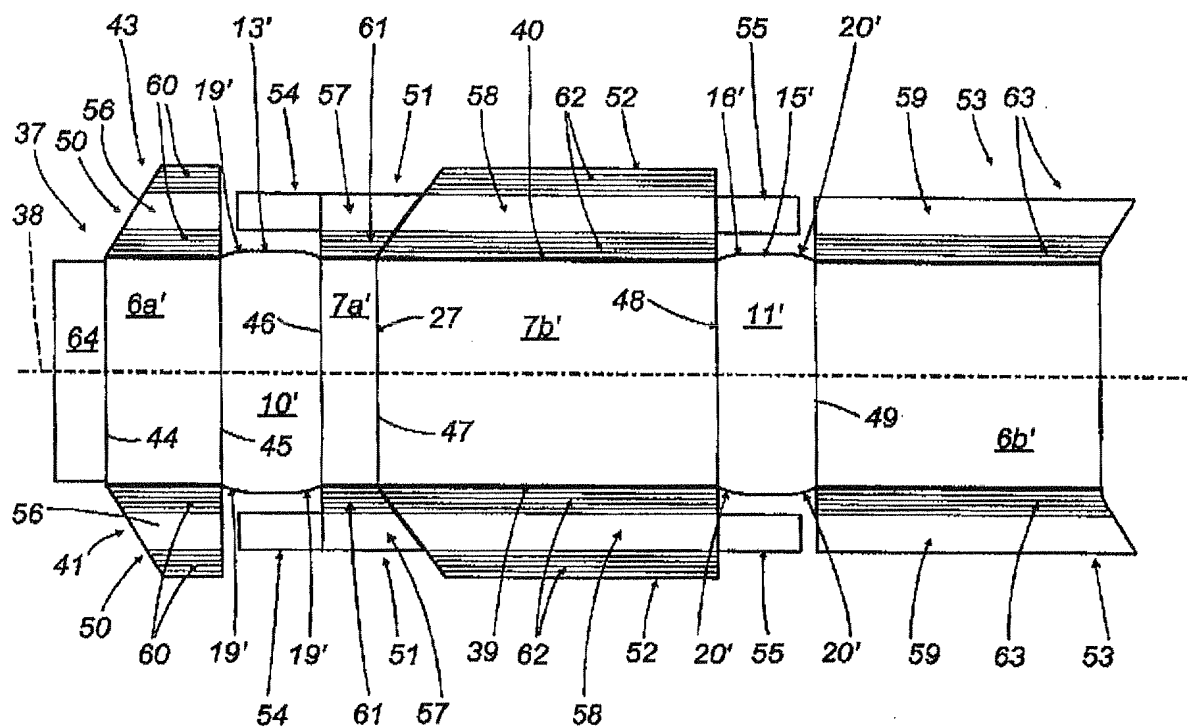


FIG. 12

